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EXAMINER	
SHEPARD, JUSTIN E	

ART UNIT	PAPER NUMBER
2623	

DATE MAILED: 11/24/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/817,012	CHILDERS ET AL.	
	Examiner	Art Unit	
	Justin E. Shepard	2623	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *05 September 2006*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-58 and 61-67* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-10,12-23,27-58 and 61-67* is/are rejected.

7)☒ Claim(s) *11 and 24-26* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

In view of the Appeal Brief filed on 09/05/2006, PROSECUTION IS HEREBY REOPENED. The new grounds of rejection are set forth below.

To avoid abandonment of the application, appellant must exercise one of the following two options:

(1) file a reply under 37 CFR 1.111 (if this Office action is non-final) or a reply under 37 CFR 1.113 (if this Office action is final); or,

(2) initiate a new appeal by filing a notice of appeal under 37 CFR 41.31 followed by an appeal brief under 37 CFR 41.37. The previously paid notice of appeal fee and appeal brief fee can be applied to the new appeal. If, however, the appeal fees set forth in 37 CFR 41.20 have been increased since they were previously paid, then appellant must pay the difference between the increased fees and the amount previously paid.

A Supervisory Patent Examiner (SPE) has approved of reopening prosecution by signing below:

Chris Grant.

CHRISTOPHER GRANT
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2600

Response to Arguments

Applicant's arguments filed 9/5/06 have been fully considered but they are not persuasive.

Appeal Brief, pages 11-15:

The applicant argues that Divelbiss does not disclose an "electronic display system." On figure 39, Divelbiss discloses a system with a system that is being interpreted as an electronic display system.

The applicant argues that figure 43 shows that the system only outputs RGB data, and therefore the system does not meet the multiple color group limitation. Divelbiss discloses in the brief descriptions of drawings that figure 43 shows a 3D Data Formatter, while figure 39 shows a DMD based stereo 3D projector. Figure 39 shows a color wheel, which could be used to create a number of different color combinations.

The applicant finally argues that Divelbiss does not disclose a system that outputs sub-frames, where each group of sub-frames utilizes a different plurality of colors. Divelbiss is a system that can create a 3D effect by alternating the light reaching each eye. For example the first sub-frame would reach the right eye, while the left eye would not receive any information. The next sub-frame would replace the existing sub-frame on the screen, and this sub-frame would reach the left eye, while the right eye did not receive any data. This is achieved by giving the user a pair of glasses, each lens being made from a different color glass. This system is similar to the old 3D comic books that would have the user wear a pair of glasses with a red and blue lens. The images of the sub-frames are biased to the color of the glasses, but they are not true single primary colors. Therefore the sub-frames would utilize different colors biased to the color of the lens, and this would create two distinct groups of colors. The rejection stands.

Page 15-17 and 18-20:

Applicant's arguments with respect to claim 1 (and similar claims) have been considered but are moot in view of the new ground(s) of rejection.

Page 17:

The applicant argues that the use of Era in the rejection of claim 27 is improper. Era was not used in the rejection of claim 27, and therefore the argument is moot.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 19-23, 48, 49, 53, 55, 56, and 66 are rejected under 35 U.S.C. 102(e) as being anticipated by Divelbiss.

Referring to claim 19, Divelbiss discloses a method of displaying an image in three dimensions during a frame period, said method comprising: generating a left image sub-frame and a right image sub-frame, said left image sub-frame defining a visual perspective of a left eye and said right image sub-frame defining a visual perspective of a right eye for said image (page 11, paragraph 177); displaying said left

image sub-frame with said display system, wherein said electronic (figure 43 shows an electronic system) display system outputs a display of said left image sub-frame (figure 43) utilizing a first plurality of colors; and displaying said right image sub-frame with said display system, wherein said display system outputs a display of said right image sub-frame (figure 43) utilizing a second plurality of colors; wherein said first plurality of colors is distinct from said second plurality of colors (page 18, paragraph 222, lines 1-7, 14-20).

Referring to claim 20, Divelbiss discloses a method of claim 19, wherein said first plurality of colors and said second plurality of colors comprise different sets of primary colors (page 18, paragraph 222, lines 1-7, 14-20).

Referring to claim 21, Divelbiss discloses a method of claim 19, further comprising: dividing said frame period into a plurality of sub-frame time periods including at least one left sub-frame time period and one right sub-frame time period; displaying said left image sub-frame during said at least one left sub- frame time period; and displaying said right sub-frame image during said at least one right image sub-frame time period (page 11, paragraph 177).

Referring to claim 22, Divelbiss discloses a method of claim 19, wherein said left image sub-frame is displayed during a first portion of said frame period and said right image sub-frame is displayed during a second portion of said frame period, wherein said first portion and said second portion are overlapping (page 11, paragraph 181).

Referring to claim 23, Divelbiss discloses a method of claim 19, wherein said first plurality of colors includes red, green, and blue (page 18, paragraph 222, lines 1-7, 14-20).

Referring to claim 48, Divelbiss discloses a device, comprising: an image processing unit configured to generate image sub-frame data; and a color modulator electronically coupled (figure 13) to said image processing unit configured to generate a plurality of image sub-frames based on said image sub-frame data (page 11, paragraph 177); wherein said color modulator generates a first plurality of colors to output at least one image sub-frame of said plurality of image sub-frames and a second plurality of colors, distinct from said first plurality of colors (page 18, paragraph 222, lines 1-7, 14-20), for at least one other image sub-frame of said plurality of image sub-frames.

Referring to claim 49, Divelbiss discloses a device of claim 48, wherein said first plurality of colors and said second plurality of colors comprise different sets of primary colors (page 18, paragraph 222, lines 1-7, 14-20; Note: because green is made up of blue and yellow, and magenta is made up of blue and red, these are being interpreted as different sets of colors).

Referring to claim 53, Divelbiss discloses a 3D imaging device of claim 48, further comprising: at least one set of lenses having a first and second lens wherein

said first lens filters out said first plurality of colors and said second lens filters out said second plurality of colors (paragraph 222, lines 14-20).

Referring to claim 55, Divelbiss discloses a device of claim 48, wherein said color modulator displays said at least one image sub-frame and said at least one other image sub-frame at the same time during one frame period (page 11, paragraph 179).

Referring to claim 56, Divelbiss discloses a device of claim 48, wherein said color modulator includes an array of pixels and is configured to display said at least one image sub-frame and said at least one other image sub-frame in alternating adjacent pixels during at least a portion of one frame period (page 11, paragraph 181).
Referring to claim 66, Divelbiss discloses a system for displaying an image in three dimensions during a frame period, said system comprising: means for generating a left image sub-frame and a right image sub- frame, said left image sub-frame defining a visual perspective of a left eye and said right image sub-frame defining a visual perspective of a right eye for said image (page 11, paragraph 177); means for electronically (figure 13) displaying said left image sub-frame utilizing a first plurality of colors to compose the display of the left image sub-frame; and means for electronically (figure 13) displaying said right image sub-frame utilizing a second plurality of colors to compose the display of the right image sub-frame; wherein said first plurality of colors is distinct from said second plurality of colors (page 18, paragraph 222, lines 1-7, 14-20).

Claims 27-29, 33-35, 45, and 46 are rejected under 35 U.S.C. 102(e) as being anticipated by Songer.

Referring to claim 27, Songer discloses a system with a selectable mode of operation for displaying an image frame in three dimensions (3D) or in two dimensions (2D), said system comprising: a spatial light modulator; and an image processing unit configured to control said spatial light modulator (column 5, lines 59-62) in a selected mode of operation which is either a 3D mode of operation or a 2D mode of operation (abstract, lines 20-23; Note: removing or putting on the glasses is interpreted as selecting a mode); wherein if said selected mode of operation is said 3D mode of operation, said spatial light modulator generates a left image sub-frame carrying a left eye perspective and a right image sub-frame carrying a right eye perspective during a frame period (abstract, lines 20-21) and if said selected mode of operation is said 2D mode of operation, said spatial light modulator generates a 2D image frame to be displayed on said viewing surface during said frame period (abstract, lines 22-23).

Referring to claims 28 and 29, Songer discloses a system of claim 27, wherein said image processing unit comprises: a 3D coordinate conversion function configured to generate left and right image sub-frame data defining said left and right image sub-frames; wherein said spatial light modulator is configured to generate said left and right image sub-frames in accordance with said left and right image sub- frame data (figure 12); and where the image processing unit further comprises: a 2D coordinate conversion function configured to generate 2D image frame data defining said 2D image

frame; wherein said spatial light modulator is further configured to generate said 2D image frame in accordance with said 2D image frame data (figure 12; Note: as the same frames used for the 3D image as are used for the 2D image, therefore any coordinate conversion performed on the 3D image would be performed on the 2D image).

Referring to claims 33 and 34, Songer discloses a system of claim 27, wherein said frame period comprises a first sub-frame period and a second sub-frame period, said left image sub- frame being displayed during said first sub-frame period and said right image sub-frame being displayed during said second sub-frame period (column 9, lines 59-65); and where the frame period comprises a number of sub-frame periods, wherein said left and right image sub-frames are each displayed during one or more of said sub-frame periods in an interleaved manner (column 10, lines 6-11).

Referring to claim 35, Songer discloses a system of claim 27, further comprising glasses, said glasses comprising: a left lens configured to allow a left eye of a user of said glasses to only perceive said left image sub-frame; and a right lens configured to allow a right eye of a user of said glasses to only perceive said right image sub-frame (column 5, lines 63-64; column 6, lines 30-35).

Referring to claim 45, Songer discloses a system of claim 27, wherein said mode of operation is selected by a user of said display system (column 6, lines 30-35; Note: removing or putting on the glasses is interpreted as selecting a mode).

Referring to claim 46, Songer discloses a system of claim 27, wherein said mode of operation is selected automatically without user intervention (column 6, lines 30-35; Note: since the user does not need to have contact with the display system to use it in 3D mode, it is interpreted as being selected (from the system's point of view) automatically without any interference from the user).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 1 and 5-7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Songer in view of Smith.

Referring to claim 1, Songer discloses a method of displaying an image frame in three dimensions (3D) or in two dimensions (2D) with a single light engine (abstract, lines 1-3), said method comprising: selecting between a 2D mode of operation and a separate 3D mode of operation (abstract, lines 20-23; Note: removing or putting on the glasses is interpreted as creating 2 separate modes); generating a left image sub-frame

and a right image sub-frame if said 3D mode of operation is selected (abstract, lines 20-21); and generating a 2D image frame if said 2D mode of operation is selected (abstract, lines 22-23); wherein said left image sub-frame defines a visual perspective of a left eye and said right image sub-frame defines a visual perspective of a right eye during a frame period if said 3D mode of operation is selected and said 2D image frame is displayed during said frame period if said 2D mode of operation is selected (column 5, lines 40-41, 48-50).

Songer does not disclose a system including a projection display or a separate 2D/3D display mode for said projection system.

Smith discloses a system including a projection display or a separate 2D/3D display mode for said projection system (paragraph 26).

At the time of the invention it would have been obvious for one of ordinary skill in the art to add the 2D/3D mode selection taught by Smith to the system disclosed by Songer. The motivation would have been to allow the system software to switch between the 2 modes, thus allowing a video playlist to include both 2D and 3D videos to be shown without requiring the user to perform any action.

Referring to claim 5, Songer discloses a method of claim 1, further comprising: dividing said frame period into a first sub-frame period and a second sub-frame period; displaying said left image sub-frame during said first sub-frame period; and displaying said right image sub-frame during said second sub-frame period (column 9, lines 59-65; figure 15).

Referring to claim 6, Songer discloses a method of claim 1, further comprising: dividing said frame period into a number of sub-frame periods; displaying said left image sub-frame during one or more of said sub- frame periods; and displaying said right image sub-frame during one or more of said sub- frame periods; wherein said left and right image sub-frames are displayed in an interleaved manner (column 10, lines 6-10; figure 16).

Referring to claim 7, Songer discloses a method of claim 1, further comprising viewing said left and right image sub-frames through glasses comprising a left lens configured to allow a left eye to only perceive said left image sub-frame and a right lens configured to allow a right eye to only perceive said right image sub-frame (column 5, lines 63-67; column 6, lines 30-35).

Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over Songer in view of Smith as applied to claim 1 above, and further in view of Stuettler.

Referring to claim 2, Songer discloses a method of claim 1, wherein said step of generating said left and right image sub-frames comprises: generating left and right image sub-frame data defining said left and right image sub-frames.

Songer and Smith do not disclose a method where storing said right image sub-frame data in a second buffer; and controlling a spatial light modulator with said left and

right image sub- frame data in said first and second buffers to generate said left and right image sub-frames.

Stuettler discloses a method where storing said right image sub-frame data in a second buffer; and controlling a spatial light modulator with said left and right image sub- frame data in said first and second buffers to generate said left and right image sub-frames (column 2, lines 52-56; figure 4, parts 8a).

At the time of the invention if would have been obvious to a person or ordinary skill in the art to add the buffers from Stuettler to the method disclosed by Songer and Smith. The motivation for doing this would have been to allow for the display output to be synced up with the shutter glasses by controlling the outputs of the buffer

Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Songer in view of Smith in view of Stuettler as applied to claim 2 above, and further in view of Hochmuth.

Referring to claim 3, Songer, Smith and Stuettler do not disclose a method of claim 2, wherein a single buffer unit comprises said first and second buffers.

Hochmuth discloses a method of claim 2, wherein a single buffer unit comprises said first and second buffers (page 1, paragraph 9, lines 8-15).

At the time of the invention if would have been obvious to a person or ordinary skill in the art to replace the two buffers disclosed in Stuettler with the single buffer from Hochmuth. The motivation for doing this would have been to reduce the amount of control circuitry by only needing to control a single buffer unit.

Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Songer in view of Smith as applied to claim 1 above, and further in view of Hochmuth.

Referring to claim 4, Songer does not disclose a method of claim 1, wherein said step of generating said 2D image frame comprises: generating 2D image frame data defining said 2D image frame; storing said 2D image frame data in a buffer; and controlling a spatial light modulator with said 2D image frame data in said buffer to generate said 2D image frame.

Hochmuth discloses a method of claim 1, wherein said step of generating said 2D image frame comprises: generating 2D image frame data defining said 2D image frame; storing said 2D image frame data in a buffer; and controlling a spatial light modulator with said 2D image frame data in said buffer to generate said 2D image frame (page 1, paragraph 9, lines 8-15).

At the time of the invention if would have been obvious to a person or ordinary skill in the art to observe that if the method disclosed by Songer displays images that can be viewed in either two or three dimensions depending on whether or not you're wearing a pair of glasses, that the buffering of the 3D frames described in Hochmuth would also be buffering the 2D frames.

Claim 14 is rejected under 35 U.S.C. 103(a) as being unpatentable over Songer in view of Smith in further view of Sato (An author of a SPIE article titled "New Type Electo-Holographic Display System Using LCDs").

Songer and Smith do not disclose a method of claim 8, further comprising generating said colors in said first and second groups of colors with a parallel color device.

Sato discloses a method of claim 8, further comprising generating said colors in said first and second groups of colors with a parallel color device (abstract, paragraph 2, lines 1-4).

At the time of the invention if would have been obvious to a person or ordinary skill in the art to replace the display system disclosed in Songer with the parallel color device disclosed in Sato. The motivation for doing this would have been to make the system more compact (abstract, line 8).

Claims 8-10, 15, and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Songer in view of Smith as applied to claim 1 above, and further in view of Divelbiss.

Songer does not disclose a method of claim 1, wherein said left image sub-frame comprises a first group of colors and said right image sub-frame comprises a second group of colors distinct from said first group of colors; where the 2D image frame comprises one or more of said colors in said first and second groups of colors; where the first group of colors comprises two or more colors and said second group of colors comprises two or more colors; and where the left image sub-frame and said right image sub-frame have differing polarizations.

Divelbiss discloses a method of claim 1, wherein said left image sub-frame comprises a first group of colors and said right image sub-frame comprises a second group of colors distinct from said first group of colors; where the 2D image frame comprises one or more of said colors in said first and second groups of colors; where the first group of colors comprises two or more colors and said second group of colors comprises two or more colors (page 18, paragraph 222, lines 1-7, 14-20; Note: because green is made up of blue and yellow, and magenta is made up of blue and red, these are being interpreted as different sets of colors; Note: since the 3D and 2D image signals do not vary in the method disclosed by Songer the 2D image frame would be the same as the 3D image frame); and where the left image sub-frame and said right image sub-frame have differing polarizations (page 17, paragraph 215, lines 1-5).

At the time of the invention if would have been obvious to a person or ordinary skill in the art to replace the shutter glasses method disclosed in Songer with the color and polarization method disclosed in Divelbiss. The motivation for doing this would have been to use a simpler passive system as compared to the complex syncing circuitry needed to keep the shutter glasses in sync with the image display.

Referring to claim 15, Songer discloses a method of claim 8, further comprising generating said colors in said first and second groups of colors with a diffractive light device (figure 4, part 72; Note: the definition of a diffractive light device is "a device to change the direction and intensity of a group of waves after passing by an obstacle or through an aperture.").

Claim 12 is rejected under 35 U.S.C. 103(a) as being unpatentable over Songer in view of Smith in view of Divelbiss as applied to claim 8 above, and further in view of Wells.

Songer, Smith and Divelbiss do not disclose a method of claim 8, further comprising generating said colors in said first and second groups of colors with a sequential color device.

Wells discloses a method of claim 8, further comprising generating said colors in said first and second groups of colors with a sequential color device (page 10, column 1, lines 15-18).

At the time of the invention if would have been obvious to a person or ordinary skill in the art to replace the display system disclosed in Songer with the sequential color device disclosed in Wells. The motivation for doing this would have been to allow for the use of a grayscale CRT monitor instead of a color CRT (page 10, column 1, line 16).

Claim 13 is rejected under 35 U.S.C. 103(a) as being unpatentable over Songer in view of Smith in view of Divelbiss as applied to claim 8 above, and further in view of Anderson.

Songer, Smith, and Divelbiss do not disclose a method of claim 8, further comprising generating said colors in said first and second group of colors with a scrolling color device.

Anderson discloses a method of claim 8, further comprising generating said colors in said first and second group of colors with a scrolling color device (section 1, lines 1-3).

At the time of the invention if would have been obvious to a person or ordinary skill in the art to replace the display system disclosed in Songer with the scrolling color device disclosed in Anderson. The motivation for doing this would have been to allow the designer to adjust the relative optical powers of the primary colors by changing the stripe heights of the primary colors (page 1, section 1, lines 10-11).

Claims 16 and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Songer in view of Smith in view of Divelbiss as applied to claim 15 above, and further in view of Bolas.

Songer, Smith and Divelbiss do not disclose a method of claim 15, further comprising notch filtering light incident upon said diffractive light device; and further comprising notch filtering light reflecting from said diffractive light device.

Bolas discloses a method of claim 15, further comprising notch filtering light incident upon said diffractive light device; and further comprising notch filtering light reflecting from said diffractive light device (page 19, section "Optical filtering," paragraph 2, lines 2-8).

At the time of the invention if would have been obvious to a person or ordinary skill in the art to use the notch filters from Bolas in conjunction with the diffractive light

device from Songer, Smith and Divelbiss. The motivation for doing this would have been to restrict the device to specific wavelengths of light.

Claim 67 is rejected under 35 U.S.C. 103(a) as being unpatentable over Songer in view of Smith as applied to claim 1 above, and further in view of Taniguchi.

Referring to claim 67, Songer and Smith do not disclose a method of claim 1, wherein generating said left and right image sub-frames and said 2D image frame comprises: storing said left and right image sub-frames in a first buffer; and storing said 2D image frame data in a second buffer; and controlling a spatial light modulator with data from either said first or second buffer depending on the selected mode of operation.

Taniguchi discloses a method of claim 1, wherein generating said left and right image sub-frames and said 2D image frame comprises: storing said left and right image sub-frames in a first buffer (paragraph 93, lines 3-8); and storing said 2D image frame data in a second buffer (paragraph 82, lines 12-14); and controlling a spatial light modulator with data from either said first or second buffer depending on the selected mode of operation (paragraph 82, lines 6-11).

At the time of the invention it would have been obvious for one of ordinary skill in the art to use one buffer for 2D and another for 3D images as taught by Taniguchi in the system disclosed by Songer and Smith. The motivation for doing this would have been to easily switch between 2D and 3D displaying modes as the modes would use separate memories (Taniguchi: paragraph 81, lines 1-2).

Claims 61, 64 and 65 are rejected under 35 U.S.C. 103(a) as being unpatentable over Songer in view of Smith in view of Taniguchi.

Referring to claim 61, Songer discloses a system for displaying an image frame in three dimensions (3D) or in two dimensions (2D) with a single light engine (column 5, lines 59-62), said system comprising: means for selecting between a 2D mode of operation and a 3D mode of operation (column 6, lines 30-35); means for generating a left image sub-frame and a right image sub- frame if said 3D mode of operation is selected; and means for generating a 2D image frame if said 2D mode of operation is selected; wherein said left and right image sub-frames are left and right perspectives during a frame period if said 3D mode of operation (column 5, lines 48-50) is selected and said 2D image frame is displayed during said frame period if said 2D mode of operation is selected.

Songer does not disclose a system including a projection display or a separate 2D/3D display mode for said projection system.

Smith discloses a system including a projection display or a separate 2D/3D display mode for said projection system (paragraph 26).

At the time of the invention it would have been obvious for one of ordinary skill in the art to add the 2D/3D mode selection taught by Smith to the system disclosed by Songer. The motivation would have been to allow the system software to switch between the 2 modes, thus allowing a video playlist to include both 2D and 3D videos to be shown without requiring the user to perform any action.

Songer and Smith do not disclose a system where said 2D image frame does not comprise sub-frames having different perspectives.

Taniguchi discloses a system where said 2D image frame does not comprise sub-frames having different perspectives (paragraph 81, lines 1-2; paragraph 82, lines 6-11).

At the time of the invention it would have been obvious for one of ordinary skill in the art to have a 2D display mode where the 2D image is not made from 2 sub-frames as taught by Taniguchi, in the system disclosed by Songer and Smith. The motivation for doing this would be when the 2D image is coming from a 2D imaging device such as a normal camera (Taniguchi: paragraph 82, lines 1-3).

Referring to claim 64, Songer discloses a system of claim 61, further comprising: means for dividing said frame period into a first sub-frame period and a second sub-frame period; means for displaying said left image sub-frame during said first sub-frame period; and means for displaying said right image sub-frame during said second sub-frame period (column 9, lines 59-65; figure 15).

Referring to claim 65, Songer discloses a system of claim 61, further comprising: means for dividing said frame period into a number of sub-frame periods; means for displaying said left image sub-frame during one or more of said sub-frame periods; and means for displaying said right image sub-frame during one or more of said sub-frame

periods; wherein said left and right image sub-frames are displayed in an interleaved manner (column 10, lines 6-10; figure 16).

Claim 30 is rejected under 35 U.S.C. 103(a) as being unpatentable over Songer in view of Stuettler.

Songer does not disclose a system of claim 29, further comprising: a first buffer for storing said left image sub-frame data to be used by said spatial light modulator to generate said left image sub-frame; a second buffer for storing said right image sub-frame data to be used by said spatial light modulator to generate said right image sub-frame; and a third buffer for storing said 2D image frame data to be used by said spatial light modulator to generate said 2D image frame.

Stuettler discloses a system of claim 29, further comprising: a first buffer for storing said left image sub-frame data to be used by said spatial light modulator to generate said left image sub-frame; a second buffer for storing said right image sub-frame data to be used by said spatial light modulator to generate said right image sub-frame (column 2, lines 52-56; figure 4, parts 8a); and a third buffer for storing said 2D image frame data to be used by said spatial light modulator to generate said 2D image frame (Note: as the 2D image is made up of both frames used in the 3D image, both buffers in combination are being interpreted as the third 2D buffer).

At the time of the invention if would have been obvious to a person or ordinary skill in the art to add the buffers from Stuettler to the method disclosed by Songer. The

motivation for doing this would have been to allow for the display output to be synced up with the shutter glasses by controlling the outputs of the buffer.

Claims 31 and 32 are rejected under 35 U.S.C. 103(a) as being unpatentable over Songer in view of Stuettler as applied to claim 30 above, and further in view of Hochmuth.

Songer and Stuettler do not disclose a system of claim 30, wherein a single buffer unit comprises said first, second, and third buffers; and a single buffer unit comprises said first and second buffers.

Hochmuth discloses a system of claim 30, wherein a single buffer unit comprises said first, second, and third buffers (page 1, paragraph 9, lines 8-15); and a single buffer unit comprises said first and second buffers (Note: as claim was interpreted above, the two buffers used in the 3D mode are both used as the buffers in the 2D mode, therefore the combination of the two buffers used in the 3D mode would be the same as the all three buffers being combined as disclosed in claim 31).

At the time of the invention if would have been obvious to a person or ordinary skill in the art to replace the three buffers disclosed in Stuettler with the single buffer from Hochmuth. The motivation for doing this would have been to reduce the amount of control circuitry by only needing to control a single buffer unit.

Claim 36 is rejected under 35 U.S.C. 103(a) as being unpatentable over Songer in view of Divelbiss.

Referring to claim 36, Songer does not disclose a system of claim 27, wherein said left image sub-frame comprises a first group of colors and said right image sub-frame comprises a second group of colors distinct from said first group of colors.

Divelbiss discloses a system of claim 27, wherein said left image sub-frame comprises a first group of colors and said right image sub-frame comprises a second group of colors distinct from said first group of colors ((page 18, paragraph 222, lines 1-7, 14-20; Note: because green is made up of blue and yellow, and magenta is made up of blue and red, these are being interpreted as different sets of colors).

At the time of the invention if would have been obvious to a person or ordinary skill in the art to replace the shutter glasses method disclosed in Songer with the color and polarization method disclosed in Divelbiss. The motivation for doing this would have been to use a simpler passive system as compared to the complex syncing circuitry needed to keep the shutter glasses in sync with the image display.

Claim 47 is rejected under 35 U.S.C. 103(a) as being unpatentable over Songer in view of Anderson.

Songer discloses a system of claim 27; wherein said spatial light modulator is selected from the group consisting of an analog based light modulator (column 5, lines 59-62).

Songer does not disclose a system of claim 27, wherein said spatial light modulator is selected from the group consisting of a pulse- width modulation based light

modulator, a liquid crystal display (LCD) panel, a liquid crystal on silicon (LCOS) device, a diffractive light device (DLD), and an array of micro-mirrors.

Anderson discloses a system of claim 27, wherein said spatial light modulator is selected from the group consisting of a liquid crystal on silicon (LCOS) device (page 1, section 1, lines 1-3).

At the time of the invention if would have been obvious to a person or ordinary skill in the art to replace the display system disclosed in Songer with the scrolling color device disclosed in Anderson. The motivation for doing this would have been to allow the designer to adjust the relative optical powers of the primary colors by changing the stripe heights of the primary colors (page 1, section 1, lines 10-11).

Claims 50 and 54 are rejected under 35 U.S.C. 103(a) as being unpatentable over Divelbiss in view of Stuettler.

Divelbiss does not disclose a device of claim 48, further comprising one or more image sub-frame buffers for storing said image sub-frame data generated by said image processing unit; and displays said at least one image sub-frame and said at least one other image sub-frame buffer during one frame period.

Stuettler discloses a device of claim 48, further comprising one or more image sub-frame buffers for storing said image sub-frame data generated by said image processing unit; and displays said at least one image sub-frame and said at least one other image sub-frame buffer during one frame period (column 2, lines 52-56; figure 4, parts 8a).

At the time of the invention if would have been obvious to a person or ordinary skill in the art to add the buffers from Stuettler to the method disclosed by Divelbiss. The motivation for doing this would have been to allow for the display output to be synced up with the shutter glasses by controlling the outputs of the buffer.

Claims 51 and 52 are rejected under 35 U.S.C. 103(a) as being unpatentable over Divelbiss in view of Bolas.

Divelbiss does not disclose a device of claim 48, further comprising: a light source for illuminating said color modulator; and at least one notch filter disposed between said light source and said color modulator; and at least one notch filter disposed between said color modulator and a viewing surface.

Bolas discloses a device of claim 48, further comprising: a light source for illuminating said color modulator; and at least one notch filter disposed between said light source and said color modulator; and at least one notch filter disposed between said color modulator and a viewing surface (page 19, section "Optical filtering," paragraph 2, lines 2-8).

At the time of the invention if would have been obvious to a person or ordinary skill in the art to use the notch filters from Bolas in conjunction with the projector system from Divelbiss. The motivation for doing this would have been to restrict the device to specific wavelengths of light.

Claims 57 and 58 are rejected under 35 U.S.C. 103(a) as being unpatentable over Divelbiss in view of Songer.

Divelbiss discloses a device of claim 57, wherein said 2D image frame includes said first set of primary colors and said second set of primary colors.

Divelbiss does not disclose a device of claim 48, wherein said imaging processing unit is further configured to generate 2D image frame data, wherein said color modulator generates a 2D image frame based on said 2D image frame data.

Songer discloses a device of claim 48, wherein said imaging processing unit is further configured to generate 2D image frame data, wherein said color modulator generates a 2D image frame based on said 2D image frame data (column 6, lines 30-35).

At the time of the invention if would have been obvious to a person of ordinary skill in the art to add the 2D method from Songer into the display disclosed by Divelbiss. The motivation for doing this would have been to add the ability to display 2D images on the same display and the same time as 3D images are being displayed.

Claims 62 and 63 are rejected under 35 U.S.C. 103(a) as being unpatentable over Songer in view of Smith in view of Taniguchi as applied to claim 61 above, and further in view of Stuettler.

Songer discloses a system of claim 61, wherein said means for generating said left and right image sub-frames comprises: means for generating left and right image sub-frame data defining said left and right image sub-frames.

Songer does not disclose a means for storing said left image sub-frame data in a first buffer; means for storing said right image sub-frame data in a second buffer; and means for controlling a spatial light modulator with said left and right image sub-frame data in said first and second buffers to generate said left and right image sub-frames; and a means for generating said 2D image frame comprises: means for generating 2D image frame data defining said 2D image frame; means for storing said 2D image frame data in a buffer; and means for controlling a spatial light modulator with said 2D image frame data in said buffer to generate said 2D image frame.

Stuettler discloses a means for storing said left image sub-frame data in a first buffer; means for storing said right image sub-frame data in a second buffer; and means for controlling a spatial light modulator with said left and right image sub-frame data in said first and second buffers to generate said left and right image sub-frames; and a means for generating said 2D image frame comprises: means for generating 2D image frame data defining said 2D image frame; means for storing said 2D image frame data in a buffer; and means for controlling a spatial light modulator with said 2D image frame data in said buffer to generate said 2D image frame (column 2, lines 52-56; figure 4, parts 8a).

At the time of the invention if would have been obvious to a person or ordinary skill in the art to add the buffers from Stuettler to the method disclosed by Songer. The motivation for doing this would have been to allow for the display output to be synced up with the shutter glasses by controlling the outputs of the buffer.

At the time of the invention if would have been obvious to a person or ordinary skill in the art to observe that if the method disclosed by Songer displays images that can be viewed in either two or three dimensions depending on whether or not you're wearing a pair of glasses, that the buffering of the 3D frames described in Stuettler would also be buffering the 2D frames.

Claim 37 is rejected on the same grounds as claim 9.

Claim 38 is rejected on the same grounds as claim 10.

Claim 39 is rejected on the same grounds as claim 12.

Claim 40 is rejected on the same grounds as claim 12.

Claim 41 is rejected on the same grounds as claim 14.

Claim 42 is rejected on the same grounds as claim 15.

Claims 43 and 44 are rejected on the same grounds as claims 16 and 17.

Allowable Subject Matter

Claims 11, 24, 25, and 26 objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP

§ 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Justin E. Shepard whose telephone number is (571) 272-5967. The examiner can normally be reached on 7:30-5 M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Chris Grant can be reached on (571) 272-7294. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

JS

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